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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/836,430	04/18/2001	Motoo Koyama	1539.1008	6838

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STAAS & HALSEY LLP
700 11TH STREET, NW
SUITE 500
WASHINGTON, DC 20001

EXAMINER

NGUYEN, HUNG

ART UNIT

PAPER NUMBER

2851

DATE MAILED: 01/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/836,430

Applicant(s)

KOYAMA ET AL.

Examiner

Hung Henry V Nguyen

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-- Th MAILING DATE of this communication appears on th cover she t with th correspondenc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4 and 6-12 is/are allowed.
- 6) ☒ Claim(s) 13-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 22 November 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Pri rity under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 21-27 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification lacks adequate support for the claimed provision of “a curved optical surface” and “a thin film being formed on the curved optical surface” (see claim 21 for example).

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 21-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claims 21-27 the recitation of “a curved surface” or “a thin film being formed on the curved optical surface” are vague and indefinite. (see rejection under 35 U.S.C. 112, first paragraph, supra). Applicant fails to disclose the detail of the shape of the optical surface as claimed. It would require undue experimentation for one of ordinary skill in the art to make and use the invention for the reason set forth above.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 13-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (U.S.Pat. 6,051,842) in view of Tei et al (U.S.Pat. 6,292,616).

With respect to claims 13-27, Yamamoto discloses an exposure apparatus comprising substantially all basic features of the instant claims such as: a light source (111) including three bright lines of g-line, h-line and i-line; an illumination optical system placed between the light source and the mask (see fig.1) and a projection optical system (130) for transferring a pattern formed on the mask onto the substrate (W1). Yamamoto does not expressly disclose an optical element comprising a thin film and a suppressor for correcting the wavelength dependence. Tei et al teaches an optical attenuator having an antireflection coating (12a) having wavelength dependence formed on one surface and a second antireflection coating (12b) as a suppressor which is formed on the other side of the optical apparatus for correcting/canceling the wavelength dependence in a predetermined wavelength band. Tei further suggests that "in the conventional optical attenuator, as the wavelength changes to the longer wavelength side, the transmissivity rises gradually.... Other antireflection coating 12b is a coating having a reverse characteristics of this characteristic so as to cancel the wavelength dependence" (see col.4, lines

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10-18) and further teaches “by varying the number of layers or the optical thickness, the wavelength dependence of the central wavelength or reflectivity may be changed”depending on the operating wavelength range” or “Herein, the antireflection coating 12b is a coating of four layers, and its central wavelength is a shorter wavelength than the operating wavelength” or “transmissivity is lower at 1600nm than at 1500nm” (see col.4, lines 40-52). It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Yamamoto and Tei et al to obtain the invention as specified in the above claims. It would have been obvious to a skilled artisan to employ the “thin film” and the “suppressor” as taught by Tei into an (“curved”) optical element of the exposure device of Yamamoto for the purpose of suppressing the wavelength dependence and thus improving the quality of the exposure apparatus.

It is noted that, as to claims 21-26, although Tei does not expressly disclose the optical element (10) is “a curved optical surface”. It would have been an obvious matter of design choice to employ “a curved optical surface” since such a modification would have involved a mere change in the shape of a element. A change in shape is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237.

Allowable Subject Matter

7. Claims 1-4, 6-12 are allowed. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record either alone or in combination, neither discloses nor makes obvious an optical apparatus having an optical surface, a thin film, and a suppressor having a reflectance characteristic of increasing reflectance on a short wavelength

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side of a working wavelength region and decreasing reflectance on a long wavelength side of the working wavelength region as recited in the above claims.

Response to Amendment

8. Applicant's amendment filed November 22, 2002 have been entered. Claims 1-4, 6, 7, and 9-20 have been amended. New claims 21-26 have been added.

With respect to claims 13-26, applicants' arguments have been carefully considered but they are not found to be persuasive. The applicant is reminded that the claimed subject matter to examination will be given their broadest reasonable interpretation consistent with the specification, and limitations appearing in the specification are not be read into the claims. In re Yamamoto, 740 F. 2d 1569, 1571, 222 USPO 934, 936 (Fed.Cir. 1984).

With this in mind, the discussion herein will focus on how the terms and relationships thereof in the claims are met by the references. Response to any limitation that is not in the claims or any argument that is irrelevant to or does not relate to any specific claimed language will not be warranted.

Applicant argued that there is no suggestion to combine the references, the Examiner recognized that references can not be arbitrarily combined and that there must be some reason why one having ordinary skill in the art would be motivated to make the proposed combination of primary and secondary references. In re Nomiya, 184 USPQ 607. However, there is no requirement that a motivation to make the modification be expressly articulated. The test for combining references is what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. In re McLaughlin, 170 USPQ 209. References are evaluated by

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what they suggest to one versed in the art, rather than by their specific disclosures. In re Bozed, 163 USPQ 545. Yamamoto discloses an exposure apparatus for transferring a pattern formed on a mask onto a substrate. In order to improve the quality of the images to be printed, it is well known per se that in an exposure apparatus, the optical elements are coated with an antireflection layer to reduce the reflectance and increase the light transmittance. However, this caused unevenness illumination distribution in the illumination regions due to obliquely incident rays from the light source. As discussed, Tei et al teaches an optical attenuator (depending on the incident light), having an antireflection coating having wavelength dependence formed on one surface and a suppressor which is formed on the other side of the optical apparatus for compensation of the wavelength dependence in a predetermined wavelength band and thus obtaining uniformity of light transmittance (see col.3, lines 15 col.4, lines 52). Although, Tei does not expressly disclose the optical attenuator is used in an exposure apparatus for transferring a pattern formed on a mask onto a substrate. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQed 1647 (1987). Furthermore, in this case, the combination of the teachings of Tei and Yamamoto, taken as a whole would suggest to one of ordinary skill in the art for at least the purpose of the obtaining the uniform illumination distribution and thus improving the quality of the exposure apparatus.

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9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

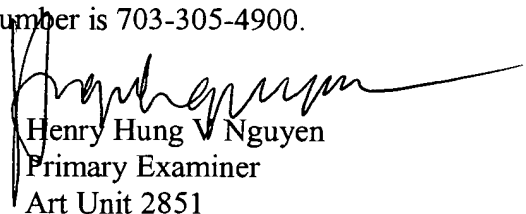
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Henry Hung V Nguyen whose telephone number is 703-305-6462. The examiner can normally be reached on Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on 703-308-2847.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4900.

Hvn
1/26/02


Henry Hung V Nguyen
Primary Examiner
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